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Jonathan M. Chalett and Lewis T. Nerenberg

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"Blue Balls": A Diagnostic Consideration in Testiculoscrotal Pain in Young Adults: A Case Report and Discussion

"Blue balls" is a widely used colloquialism describing scrotal pain after high, sustained sexual arousal unrelieved because of lack of orgasm and ejaculation. It is remarkable that the medical literature completely lacks acknowledgment of this condition. The case reported here illustrates that a good history may help make the diagnosis, offer the possibility of prompt relief, and avoid any unnecessary evaluation. Clinicians should be aware of this condition and consider it in the differential diagnosis of scrotal pain.

CASE REPORT

A 14-year-old male presented to the emergency department with a history of severe bilateral scrotal pain of 1.5 hours' duration. There was no associated nausea or vomiting. The patient denied fever, chills, or feeling systemically ill. He described the pain as sharp, stabbing, constant, and unaffected by position. There was no history of dysuria, urethral discharge, previous urinary tract infections, trauma, or any history of prior sexual intercourse. The patient was a reluctant historian.

On further history he noted that 1 week earlier he had experienced a milder form of this scrotal pain that had resolved slowly over 2 to 3 hours. In each instance the pain started when he had been "messing around," engaged in foreplay with his first girlfriend, kissing and fondling while fully clothed. In neither case did he ejaculate, and the pain began immediately after stopping foreplay.

On physical examination the patient was alert and nontoxic. He appeared uncomfortable and in moderately severe pain. Vital signs were normal, and physical examination was unremarkable except for diffuse testicular tenderness, increased over the epididymis bilaterally. Cremasteric reflex was present bilaterally. The urine analysis was normal. The patient's pain resolved spontaneously during 1 hour of observation in the emergency department. Telephone follow-up several weeks later revealed that the patient had begun to have sexual intercourse with his girlfriend, and no further episodes of testiculoscrotal pain had occurred.

DISCUSSION

A review of the literature was undertaken but no comment or reference to "blue balls" in any urologic, pediatric emergency medicine, general emergency medicine, or adolescent medicine textbooks could be found.[1–5] Medical librarians at 3 institutions conducted separate literature searches. Cross-references were made to articles in the sexuality literature, adolescent health literature, and to articles about scrotal pain. The one article found was from a human sexuality journal.[6] The article is nonreferenced and the information came from "common knowledge and experience."

Specialists in urology and adolescent medicine were contacted, and although they all knew about "blue balls," their information was anecdotal and not related to medical training. The great majority of adult, pediatric, urologic, and emergency physicians, as well as nurses and nonmedical people informally surveyed, know of this condition, yet no one was aware of any medical references. Certainly the urologic and adolescent literature is full of subjects equally sensitive and potentially embarrassing. What is the pathophysiology of this condition? Sexual arousal produces pelvic venous dilatation. Perhaps if this persists and testicular venous drainage is slowed, pressure builds and causes pain. Is epididymal distention the cause of the pain? As with any disease entity, there is probably a spectrum of pain with "blue balls" varying from brief, mild discomfort to severe, sustained pain, as in the case described.

The treatment is sexual release, or perhaps straining to move a very heavy object—in essence doing a Valsalva maneuver. In the one article found, the author talks of straining to lift an immovable object such as a car bumper. He claims the pain often disappears within 15 to 30 seconds. Does this work?

How many young men have suffered unnecessary pain and anxiety if a simple maneuver could bring immediate relief? Is pain always bilateral? How many patients have had surgery to rule out testicular torsion or transient testicular torsion where the pain is episodic, when the true diagnosis was "blue balls"? Is the incidence of this condition high in age groups starting sexual exploration? The answer to these questions might easily be obtained with careful histories and further research. Patient education might be integrated with clinical research. It would seem logical to incorporate discussions of "blue balls" into age-appropriate sexual education.

CONCLUSION

In summary, "blue balls" is suspected to be common among young male adults and should be considered in the differential diagnosis of acute testiculoscrotal pain in such patients. A search of the medical literature shows a paucity of information for this condition and suggests that a greater awareness and discussion of this entity would benefit both physicians and their patients.

Jonathan M. Chalett, MD
Department of Pediatric Emergency Medicine
Mary Bridge Children's Hospital
Tacoma, WA 98415

Lewis T. Nerenberg, MD
The Permanente Medical Group
Kaiser San Francisco
Department of Pediatrics
Kaiser South San Francisco, CA 94080

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Reprint requests to (J.M.C.) Department of Pediatric Emergency Medicine, Mary Bridge Children's Hospital, 409 S J Street, Tacoma, WA 98415. E-mail: cerumen@u.washington.edu
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Isolated Large Third-Trimester Intracranial Cyst on Fetal Ultrasound: Fact or Fiction?

ABSTRACT. *Objective.* To distinguish the fact from artifact of an isolated, large, intracranial cyst on prenatal sonography (PSG).

Background. The use of PSG is rapidly increasing with most obstetric ultrasounds occurring in general community settings like small hospitals and clinics with personnel who have variable training, experience, and interest levels. In contrast, most PSG articles and books are produced in large subspecialty centers with concentrated referral bases plus both highly-trained and experienced personnel.

Design/Methods. We report a series of 2 normal newborn patients who had a large prenatal unilateral intracranial cyst diagnosed by PSG in the 10 years between July of 1989 and 1999 at a rural community hospital. The newborns had imaging studies at birth and their neurodevelopmental progress was followed for several years.

Textbook, bibliography and computerized Medline (1966–present) searches including prenatal ultrasound, observer variation, diagnostic errors, reproducibility of results, sensitivity and specificity, accuracy, central nervous system, false-positive, prenatal diagnosis, and brain were examined starting in August 1996 for reports.

Results. There were 4079 obstetric ultrasounds performed in 3.5 years, January 1996 through July 1999 at this rural community facility. This rate extrapolates to a total of 11 654 obstetric ultrasounds over the 10-year study period in which the 2 cases of intracranial cyst artifact occurred. Thus, the incidence of 2 intracranial cyst artifacts was estimated as 2/11 654 PSG, a .0002% false-positive rate.

Conclusions. This is the first report of the occurrence of PSG artifacts in a community facility. Artifact is a real problem and needs to be specified in differential diagnoses. There are ways to decrease sonographic artifact—or at least to recognize it—so our estimates at a community hospital for its occurrence are presented with the relevant technical and ethical issues. None of these issues have been previously reported in the pediatric literature.

Our false-positive rate for large intracranial cyst compares favorably with other reports. Our estimate may inflate our denominator by reporting scans rather than the number of fetuses scanned, and our numerator may miss cases that moved from the community.

Confusion differentiating PSG artifact from reality often occurs when interpreting static or frozen real-time images. The signs that sonogram images may be artifacts include defects that: extend outside the fetal body; change shape, size and echogenecity with different scan planes; are not seen on all examinations; and are isolated in an otherwise normal fetus. Failure to offer quality PSG in clinical settings where it is available restricts access of pregnant women to the diagnosis of fetal anomalies, and therefore restricts access to the options of pregnancy termination, fetal therapy like fetal surgery, and delivery options of timing, setting, and mode.

We suggest a multidisciplinary approach to prenatal abnormalities like isolated third trimester unilateral intracranial cyst in both primary and tertiary care settings aids interpretation followed by expectant conservative management without elaborate, risky, or terminal interventions. *Pediatrics* 2000;106:844–849; *prenatal ultrasound, brain, quality, fetal termination, ethics.*

ABBREVIATIONS. PSG, prenatal sonography; MRI, magnetic resonance imaging.

The use of prenatal sonography (PSG) is rapidly increasing as more pregnant women are even requesting studies. Most obstetric ultrasounds occur in general community settings like small hospitals and clinics with personnel who have variable training, experience, and interest levels. In contrast, most PSG articles and books are produced in large subspecialty centers with concentrated referral bases plus both highly-trained and experienced personnel.[1] Thus the accuracy of PSG in a primary care setting remains an enigma amid reported successes and advances, which must be interpreted based on the uniqueness of their settings.[2–4]

We report a series of 2 normal newborn patients who had a large prenatal unilateral intracranial cyst diagnosed by PSG between July 1, 1989 and July 1, 1998 at a community hospital. In our 10-year study period, our rate of 4079 obstetric ultrasounds for the 3.5 years of January 1996 through July 1999 (PSG yearly rates: 1113, 1114, 1246, and 606 for 6 months of 1999, respectively) at Franciscan Skemp Healthcare, Mayo Health System, La Crosse, Wisconsin, extrapolates to a total of 11 654 PSG. Thus our incidence of 2 intracranial cyst artifacts was estimated as 2/11 654 PSG, a .0002% false-positive rate. The 1998 and 1999 ultrasounds were 97% inpatient (1210/1246 and 587/606, respectively), which is believed representative at Franciscan Skemp Healthcare Obstetrics. Case histories follow our normal newborns who had prenatal intracranial cysts on PSG. We suggest repeat examination and expectant conservative management in view of technical and ethical updates.

CASE HISTORY A

After maternal spotting, a PSG at 33 (repeated at 37) weeks' gestation showed an otherwise normal fetus with an intracranial fluid-filled, hypoechoic, flaccid structure 7.5 cm in diameter by the right lateral ventricle (Figs 1 2, 3, and 4) reported as a probable arachnoid cyst. The case was discussed with neonatology, pediatric neurology and neurosurgery consultants. With an otherwise normal fetus without hydrocephalus or midline shift, standard expectant obstetric care was advised to proceed with delivery attendance by neonatology.

Brain computed tomography and magnetic resonance imaging (MRI) at birth each showed normal structures without evidence of any cyst or scars. Physical examinations by neonatologists and a pediatric neurologist showed normal neurologic development except for an exaggerated head lag when pulled vertically from a supine position. Three months later pediatric neurology found

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Address correspondence to Dennis T. Costakos, MD, and Elizabeth A. Leistikow, MD, PhD, Franciscan Skemp Healthcare (Mayo Health System), 700 W Ave S, LaCrosse, WI 54601. E-mail: e325@juno.com
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Blue Balls

Randy Rockney, Anthony J. Alario;, Stuart A. Weinzimer, Paul S. Thornton;, Jonathan M. Chalett and Lewis T. Nerenberg

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Letters to the Editor

Statements appearing here are those of the writers and do not represent the official position of the American Academy of Pediatrics, Inc. or its Committees. Comments on any topic, including the contents of PEDIATRICS, *are invited from all members of the profession: those accepted for publication will not be subject to major editorial revision but generally must be no more than 400 words in length. The editors reserve the right to publish replies and may solicit responses from authors and others.*

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Letters should be submitted in duplicate in double-spaced typing on plain white paper with name and address of sender(s) on the letter. Send them to Jerold F. Lucey, MD, Editor, Pediatrics Editorial Office, Fletcher Allen Health Care, Burlington, VT 05401.

Blue Balls

To the Editor.—

We read with interest the case report and discussion on "blue balls."[1] We agree with the authors' conclusions that "a greater awareness and discussion of this entity would benefit both physicians and their patients." The condition described, what the urologists often term "epididymal hypertension," and some have labeled "deadly sperm buildup" or "DSB," has many other manifestations of which physicians and their caretakers ought to be aware. Other common presentations of this condition include an altered sensorium, thought to be the result of increased cerebrospinal fluid turbidity levels; and decreased visual acuity secondary to cloudiness of the fluid in the anterior chamber of the eye. The latter condition can be diagnosed by the finding of an anterior chamber meniscus.

In the discussion of treatment, however, we wonder whether the authors' suggestion that "straining to move a very heavy object" is the first choice "simple maneuver [that] could bring immediate relief." As this condition is coming to light in a highly respected pediatric journal, perhaps we should resurrect the advice of former Surgeon General Jocelyn Elders and teach masturbation in the schools. This novel idea, which led to her removal from office, should have been implemented yesterday.

RANDY ROCKNEY, MD
ANTHONY J. ALARIO, MD
Department of Pediatrics
Brown University
Hasbro Children's Hospital
Providence, RI 02903

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To the Editor.—

We read with great interest the case report of acute testiculoscrotal pain after unsatisfied sexual arousal.[1] The authors perform a great service for the field of adolescent medicine by exposing this condition for the true medical problem it is. Countless young men have, no doubt, suffered unnecessarily, as effective treatments are available. However, we believe that the report leaves some ambiguities unresolved:

1. The authors suggest that sexual release is an effective treatment. What are the ethical implications of such a statement? Will young men demand sexual satisfaction of their partners as essential medical therapy? Do the authors condone self-treatment? What about potential adverse effects of treatment, such as blindness and palmar hypertrichosis (personal communications, our mothers)?
2. What are the ethical and/or medical responsibilities for the health care team in treating young men in an urgent care setting? And if treatment is rendered, are there appropriate diagnostic and treatment codes for billing purposes?

We applaud the audacity of the authors to initiate a rational, scientific discussion on this subject that will, we fervently hope, put an end to this dreaded affliction. In the meantime, perhaps the old adage should be amended: "Abstinence makes the gems grow bluer."

STUART A. WEINZIMER, MD
PAUL S. THORNTON, MB, BCH, MRCPI
Department of Pediatrics
University of Pennsylvania
Children's Hospital of Philadelphia
Philadelphia, PA 19104

REFERENCE

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In Reply.—

We thank Drs Rockney and Alario as well as Drs Weinzimer and Thornton for their insightful and amusing letters. It's clear to us that blue balls really exists, and that it is a humorous as well as legitimate topic for medical discussion. The *News Tribune* of Tacoma presented an article (October 2, 2000) about our case report and discussion that, like the letter-writers, balanced information and levity.

A 70-year-old retired college professor told us anecdotally that in Los Angeles public schools in the 1940s a practicing physician taught him and his fellow eighth-graders about sexuality, including "lover's nuts." The doctor told them that masturbation was at times a legitimate medical treatment. As Drs Rockney and Alario point out, Dr Jocelyn Elders lost her job for suggesting the same.

Dr Dean Edell received numerous live phone calls on his national radio program after the October issue of *Pediatrics* was published and later interviewed Dr Chalett on the air. He too stressed the relevance of teaching ourselves and our patients as much about everyday issues (nutrition, stress, human sexuality) as we do about exotic and complicated diseases. He too was candid about how many complaints he would receive for even saying "masturbation" on the air, even if he did not advocate it.

Blue balls is real, yet the condition has been overlooked in the medical literature, adding unnecessary mystique and charge to a common condition. In no way should the pain of blue balls be an excuse to inappropriately advance a sexual relationship. As part of sexual education, we might teach that sexual urges are natural, abstinence is a real choice, and sexual decisions ought never to be based on coercion or exploitation.

We are not advocating any particular treatment method but are proposing education and communication. Sexual release will alleviate the pain of blue balls, but if a Valsalva maneuver offers pain relief, this option must also be taught so another nonsexual choice is available.

Drs Weinzimer and Thornton ask about appropriate billing

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codes for diagnosis and treatment of this entity, and, of course, we must recommend code blue. They "fervently hope" for "an end to this dreaded condition"; about this we can offer assurance—blue balls is real, and a cure is coming.

Jonathan M. Chalett, MD
Department of Pediatric Emergency Medicine
Mary Bridge Children's Hospital
Tacoma, WA 98415

Lewis T. Nerenberg, MD
Department of Pediatrics
Permanente Medical Group
Kaiser South San Francisco
South San Francisco, CA 94080

Effect of Inhaled Corticosteroids on Growth

To the Editor.—

I read with interest the meta-analysis of Sharek and Bergman[1] regarding the effect of inhaled corticosteroids (ICS) on growth, and felt it was important to address 2 issues in response. First, the authors' analysis of the growth effect seen during treatment with fluticasone propionate (FP) 200 μg/day indicated a small but statistically significant reduction in growth rate compared with placebo. This differs from the nonsignificant *P* value reported in our original paper,[2] and an explanation for this discrepancy is required. Second, the conclusions arrived at by the authors are nevertheless weakened by a failure to review other growth studies in which FP was the active comparator. The result is a message that may be confusing to practitioners caring for children with asthma.

I would like to begin by addressing the different conclusion arrived at by Drs Sharek and Bergman regarding the effect on growth with FP 200 μg/day. As indicated in our study, we compared the effect of FP 100 μg/day and FP 200 μg/day with placebo in prepubescent children.[2] The data for the children who remained prepubertal throughout the study were analyzed by analysis of variance (ANOVA) controlling for investigator. We reported a nonsignificant *P* value of .313, which supported our hypothesis that growth was not significantly impaired after 1-year treatment with FP 100 μg/day or 200 μg/day. I submit that Drs Sharek and Bergman most likely did not have the complete FP data available to them for their meta-analysis. Hence, it appears that the 95% confidence interval reported in their paper was calculated from the raw mean data that we reported along with the sample sizes obtained from Table 1 in our paper, which described the clinical characteristics of the prepubertal children at screening. The number of prepubertal children who actually completed the trial was less than that indicated by Table 1. The numbers of prepubertal children treated with placebo or FP 200 μg/day who completed the study were 57 and 79, respectively. The analysis in our paper used these smaller sample sizes and controlled for investigator interaction effects. Using this same basis for analysis, one would calculate a 95% confidence interval of (−0.86, 0.1). This confidence interval includes the zero value and supports the conclusion of our original paper. To not use the smaller sample sizes increases the probability of committing a type 1 error. In addition, including a parameter (used in the model to calculate *P* values and confidence intervals) for "investigator interaction effects" controls for the potential of asthmatic children with a specific disease severity being recruited at some, but not all, sites. Likewise, as height is measured at each research site, with the data pooled among all sites, the investigator interaction parameter controls for potential inconsistency in stadiometric height measurements by the different study-site coordinators. In their analysis of the data, I do not believe that Drs Sharek and Bergman took this parameter into consideration. Furthermore, as indicated in our paper, we believe that mean change from the baseline growth velocity more accurately assesses the effects of inhaled steroids on growth. As such, we reported no effect of FP 200 μg/day on this parameter, with an overall *P* value of .380 by ANOVA; a pairwise comparison of the prepubertal children who completed the trial and received either placebo or FP 200 μg/day resulted in a *P* value of .223 with a 95% confidence interval of (−0.83, 0.25).

The robustness of the conclusions of Drs Sharek and Bergman with respect to FP is undermined by the paucity of the data presented. In their search strategy, the authors excluded trials with nonsteroid control arms. This eliminates head-to-head comparisons of ICS that provide the practitioner with relevant information regarding potential for adverse growth effects. Although active control studies could not be included in the meta-analysis based on the authors' selection criteria, they could have been included in the discussion for comparative purposes. The studies of de Benedictis et al[3] (FP vs beclomethasone), Ferguson et al[4] (FP vs budesonide), and Price and colleagues[5] (FP vs cromolyn) demonstrate that FP has significantly less effect on growth than beclomethasone[3] or budesonide[4] at clinically equivalent doses, and a similar effect when compared to cromolyn.[5] This reduced effect of FP on growth could have been clearly illustrated in Figure 1 of the article, but the weighted mean difference (WMD) for FP 200 μg/day was inexplicably excluded from this figure.

When considering potential systemic effects of ICS, it is important to keep in perspective the relative benefits and risks of ICS therapy for asthma. The recently published prospective study by Agertoft and Pedersen[6] demonstrated that the administration of inhaled budesonide to asthmatic children had no effect on these children attaining final adult height, which was similar to asthmatic children who did not receive inhaled steroids, as well as healthy children. Furthermore, Suissa et al[7] recently showed that the regular use of low-dose ICS is associated with a decreased risk of death from asthma. In their study, the rate of death from asthma among users of ICS decreased by 21% for every additional canister used during the previous year and by 54% for every canister used in the previous 6 months. In both children and adults, the risk of systemic effects of ICS, already markedly reduced compared with oral corticosteroids, can be minimized by titrating to the lowest effective dose.

Although the methodology is admirable, the authors' emphasis on meta-analytical technique obscures the central message of their manuscript. Many paragraphs describing statistical tests assure the reader that the proper route to a meta-analysis has been followed. However, the results do not allow for any generalization nor do they provide the medical professional with any clear sense of differences among ICS or differences among doses. Consequently, this meta-analysis does not fulfill its potential to enhance the full picture of ICS and their use in pediatric asthma.

David B. Allen, MD
Department of Pediatrics
Pediatric Endocrinology and Pediatric Residency Training
University of Wisconsin Children's Hospital
Madison, WI 53792-4108

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